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Respectfully submitted,



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Enc.: Hand-marked copy of page 1 of the specification

# SPECIFICATION

Non-aqueous electrolyte and lithium secondary battery using the same

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This application is a continuation of *application* of *International Application* PCT/JP01/11630~~01~~ filed December 28, 2001, now abandoned.

## Field of the Invention

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The present invention relates to a non-aqueous electrolyte for lithium secondary battery, comprising a non-aqueous solvent having dissolved therein a lithium salt, and a lithium secondary battery using the same. Specifically, the non-aqueous electrolyte of the present invention comprises a non-aqueous solvent which comprises (a) at least one phosphate (phosphoric acid ester) selected from (a1) a chain state phosphate and (a2) a cyclic phosphate as an essential component, and which may contain (b1) a cyclic carboxylate (carboxylic acid ester) and (b2) a cyclic carbonate (carbonic acid ester). Further, the non-aqueous electrolyte comprises the above non-aqueous solvent which further comprises (c1) a vinylene carbonate compound and/or (c2) a vinylethylene carbonate compound, or at least one compound selected from the group consisting of (d1) a cyclic amide compound, (d2) a cyclic carbamate compound, and (d3) a heterocyclic compound.

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The non-aqueous electrolyte of the present invention has flame retardancy (self-extinguishing property) or nonflammability (having no flash point) and high conductivity as well as electrochemical stability. In addition, the secondary battery using the non-aqueous electrolyte of the present invention exhibits excellent battery charge-discharge characteristics and extremely high battery safety.

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